MICROSCAN

HawkEye™ 40T User Manual

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PREFACE

Welcome!

Purpose of This Manual

The purpose of the manual is to get you up and running quickly and confidently with your reader.

Laser Safety

Caution
Laser in the HE40T

LASER RADIATION - AVOID LONG TERM VIEWING OF DIRECT
LASER RADIATION - LASER CLASS 2M

Wavelength 630 nm - Maximum radiant power: < 1mW

EN 60825-1:2003

Note: LED Lighting

Light Emitting Diode Class 1 according to EN 60825-1:2003

Manual Conventions

The following typographical conventions are used throughout this manual:

- Items emphasizing important information are **bolded**.
- Menu selections, menu items and entries in screen images are indicated as: Operation, Configure, etc.

CHAPTER 1 Getting Started

The HawkEye™ 40T (HE40T) is a revolutionary new low cost bar code reader that employs Microscan' industry leading Direct Part Mark (DPM) reading technology. Developed to be the first universal reader, no other single device performs as many functions. With a cost of ownership far less than comparable systems, the HE40T incorporates a unique dual path optical system, a 1.3 million pixel CMOS sensor, and a 400 MHz processor. This combination has created a reading system that supports:

- DPM application
- Department of Defense Unique Identification (DoD UID)
- High density matrix codes and larger low density linear codes
- Superior working range
- High-speed omni-directional decoding
- Wireless and cabled interfaces
- Unsurpassed data rates

The HE40T sets a new benchmark for size and weight. It is smaller and lighter than comparable systems yet can withstand multiple drops to concrete. It is the only product available in handheld, gun handle, and presentation stand form factors with cabled, batch and wireless versions. The wireless version utilizes the latest Bluetooth™ class 1 radio with a 300 foot operating range. The HE40T is rugged and lightweight, and the wireless version will operate for more than a complete shift at the highest use rate. The HE40T performs more than 3000 reads

and transmits from a single battery charge. The HE40T automatically discriminates between all major 2-D and 1-D bar code symbologies and features a timestamp feature for logging data.

Whether you need a small, palm-held device or a traditional gun, the HE40T was specifically developed so that you can easily choose the device that best meets your needs. The HE40T is available in three basic configurations:

- HE40T Batch — Store and forward reader with memory and long-life battery. For more information, see “Batch Operation” on page 1-8.
- HE40T Cabled — USB, RS-232 or PS/2 interfaces. For more information, see “Cabled Operation” on page 1-11.
- HE40T Wireless — Long life battery and Bluetooth radio. For more information, see “Bluetooth Radio Operation” on page 1-20.

Note: Use of this device other than specified by Microscan is prohibited.

Unpacking

The standard HE40T reader is shipped with a USB cable interface.

Various accessories are available for the HE40T.

- 3 cable options (USB, RS-232 or PS/2)
- H2 Cabled Handle (with battery blank)
- BH1 Battery Handle (1950 mAH long-life Lithium-Ion battery)
- BH2 Battery Handle (3900 mAH long-life Lithium-Ion battery)
- Class 1 Bluetooth radio with 300 foot operating range
- External battery charger
- CodeXML Bluetooth modem

Please keep your packing materials. The HE40T is shipped in an approved shipping container and should be used if you ever need to return your equipment for servicing.

Attaching the H2 Cabled Handle

The HE40T uses the battery compartment to “snap to” the handle. Figure 1–1 shows the H2 handle with flexible connector. Figure 1–2 shows the battery blank.

FIGURE 1–1. H2 Handle with Flexible Connector

FIGURE 1–2. H2 Handle with Battery Blank

To attach the handle to the reader:

1. Push the 8-pin DIN connector at the end of the reader into the flexible connector at the end of the handle, as shown in Figure 1–3.

FIGURE 1–3. Attaching the H2 Handle

2. Insert the tab on the back of the handle into the reader (Figure 1–3).
3. Snap the reader onto the handle, matching the battery compartment to the battery connectors, visible inside the handle, as shown in Figure 1–3.

The HE40T can be secured further with threaded screws on the under side of the handle, and on the end of the flexible connector, as shown in Figure 1–4.

FIGURE 1–4. Location of Threaded Screws

Attaching the BH1/BH2 Battery Handle

The HE40T uses the battery compartment to "snap to" the handle. The BH1/BH2 handle is shown in Figure 1–5. The handle with battery is shown in Figure 1–6

FIGURE 1–5. BH1/BH2 Handle

FIGURE 1–6. BH1/BH2 Handle with Battery

To attach the handle to the reader:

1. Insert the tab on the back of the handle into the reader, as shown in Figure 1–7.
2. Snap the reader onto the handle, matching the battery compartment to the battery connectors, visible inside the handle, as shown in Figure 1–7.

FIGURE 1–7. Attaching the BH1/BH2 Handle

The HE40T can be secured further with threaded screws on the under side of the handle, as shown in Figure 1–8.

FIGURE 1–8. Location of Threaded Screws

Charging the Lithium Ion Battery

The battery automatically charges every time a cable interface is attached to the reader and the host is powered up.

Note: The RS-232 interface power adapter must be plugged into a wall socket for the reader to charge.

If you power up the HE40T with a completely discharged battery, it will take up to 10 minutes before the reader will become operational.

Batch Operation

Note: To utilize batch functionality, you will need to use the BH1 or BH2 battery handle.

The HE40T features a batch mode for applications requiring a portable reader. Batch mode allows you to store scanned data to the reader's non-volatile memory. You may transfer the data to a host computer when needed.

The HE40T may be programmed to operate in the following batch modes:

- Send & Buffer Mode (Default) — In Send and Buffer Mode, the HE40T reader will automatically detect when the USB or RS-232 cable is detached or the Bluetooth® radio is out of range, and will switch into batch mode (see "Radio Range and Transferring Data" on page 1-22) and buffer the data in non-volatile memory. When the reader is reconnected to your host computer or when the Bluetooth Radio is back in range, the reader will auto transfer the buffered data. Once transferred, the data is automatically erased from the reader's memory.

  Note: Once a reader is re-attached to a cable or enters within radio range, any data scanned WILL NOT be saved to the non-volatile memory. For RS-232, the HE40T must be in Batch mode for the data to be stored.

- Log Only Mode — In Log Only Mode, the reader will only store data into non volatile memory. You can only retrieve the data by scanning the Transfer All Stored Data in Memory code (see "Transferring and Deleting Data" on

page 1-9). Once the reader's memory has been transferred to a host computer, all of the data will still reside in memory. You must scan the Delete Scanned Data from Memory code to clear memory.

- Send & Log Mode — In Send and Log Mode, the reader will save a copy in non volatile memory as well as send the data if the reader is connected. The data can be retrieved by scanning the Transfer All Stored Data in Memory code or the Transfer Only Unsent Data in Memory code (see "Transferring and Deleting Data" on page 1-9). Once the readers memory has been transferred to a host computer, all of the data will still reside in memory. You must scan the Delete Scanned Data from Memory code to clear memory.

Note: The reader can be defined as connected if:

- The Bluetooth radio is in range.

- The USB cable is attached to a host and the reader is enumerated.

- The reader is in RS-232 cabled mode.

- The RS-232 cable is attached to a host with a power supply and the reader is in RS-232 batch mode.

The HE40T dedicated batch memory is a minimum of 1MB. To determine the number of reads that may be stored, divide the average bytes of a scan into the total minimum memory.

Feedback

After a successful decode in batch mode, the reader will beep once and the memory LED will flash either red or amber, depending on memory level. Every 15 seconds the battery LED will flash green, amber or red, depending on the battery level. This is accurate when a reader is cabled or uncabled.

Transferring and Deleting Data

There are three different codes to transfer and delete data in memory:

- Transfer All Data in Memory — This code will send all data in memory every time the code is scanned.

- Transfer Only Unsent Data in Memory — This code will send only the data in memory that hasn't already been sent when the code is scanned (ONLY works in Send and Log mode).
- Delete Scanned Data from Memory — Scanning this code will erase all data in the reader's non-volatile memory.

You may also program a trigger to transfer data (see Chapter 2, "Optimization and Trigger Programming").

Auto Transfer Buffer Memory

By default, when reconnected, the HE40T will automatically transfer any data in memory once a connection to a host is established. If your application is not ready, the reader will send the data anyway and the data could be lost. If you do not wish for the reader to immediately send data upon connection, scan the Disable Auto Transfer Buffer Memory, as shown in Figure 1–9.

FIGURE 1–9. Auto Transfer Buffer Memory Codes

M075_01
Send & Buffer Mode (Default)

M072_01
Log Only Mode

M076_01
Send & Log Mode

M077_02
Transfer All Data in Memory

M078_02
Transfer Only Unsent Data in Memory

M071_01
Delete Scanned Data from Memory

M070_01
Enable Auto Transfer Buffer Memory (Default)

M069_01
Disable Auto Transfer Buffer Memory

RS-232 Considerations

- In **RS-232 Batch Cable - Detect** mode, the HE40T will detect if it is connected to a powered serial cable, and will send the data. If a powered serial cable is not connected or if the power adapter is not connected to the serial cable, the HE40T will buffer the data. When the HE40T is then connected to a powered serial cable, the data will automatically upload.
- In **RS-232 Cabled - No Power** mode, the HE40T will behave as if it is always connected even though the serial cable is disconnected or the power adapter is unplugged. Scanned data will be sent, regardless of connection status. Data scanned in Cabled mode will be lost if the HE40T is not connected to the serial cable. It will not buffer the data, unless Send & Store mode has been enabled.

Note: If you are in RS-232 Cabled-No Power mode, when you place a reader in a charger, the reader will behave as if it is being cabled, and download the data. THE DATA WILL BE ERASED FROM MEMORY. To disable this feature, scan the RS-232 Cable - Detect code.

FIGURE 1–10. RS-232 Codes

RS-232 Batch Cable - Detect (Default)

RS-232 Cabled - No Power

Cabled Operation

The HE40T is available with USB, RS-232 and PS2 cables. All of the cables are connected to the HE40T with a 8-pin DIN connector. Different cables may be required for different hosts.

- HE40T with H2 Cabled Handle — The 8-pin DIN connection is at the bottom of the handle. Firmly push the 8-pin connector into the bottom of the handle. The cable has a locking mechanism that will firmly hold the cable in place (Figure 1–11). To detach the cable from the reader, you must pinch the plastic on the 8-pin DIN (Figure 1–11) and pull back to disengage the connector.

FIGURE 1–11. Handle with Cable Attached

Install the optional cable clip to further secure the cable to the handle with two threaded screws, as shown in Figure 1–12.

FIGURE 1–12. Securing Cable Clip with Two Threaded Screws

- HE40T with BH1/BH2 Battery Handle — Firmly push the 8-pin connector into the back end of the reader, as shown in Figure 1–13. The cable has a locking mechanism that will firmly hold the cable in place. To detach the cable from the reader, you must pinch the plastic on the 8-pin DIN and pull back to disengage the connector.

FIGURE 1–13. Handle with Cable Attached

USB Cable Installation

To connect the HE40T to your host computer via USB interface:

1. Make sure the USB cable is sufficiently attached to your HE40T reader (Figure 1–11 and Figure 1–13).

FIGURE 1–14. Connecting the USB Cable

2. You DO NOT need to power off your host computer (Figure 1–14). The HE40T with USB interface can be plugged into any host while the computer is powered up.

3. Connect the USB interface cable to the host (Figure 1–14). If you are unsure of the proper location to connect the USB cable, please consult the manualof your host computer.

4. The USB interface does not require an additional power supply. If you are using a battery handle (BH1 or BH2) for batch mode, the HE40T will automatically recharge the battery whenever the reader is a attached to a host that is powered up.

5. The HE40T will power on automatically.

6. Scan the USB Keyboard Mode code and then the Save Settings code to configure the reader:

FIGURE 1–15. USB Keyboard Mode & Save Setting Codes

M134_02
USB Keyboard Mode

M188_02
Save Settings

7. Your HE40T reader should be ready for use. Open the application on your host computer that you wish to send data to and begin scanning.

USB Communication Settings

- USB Keyboard Mode — Data is sent from the Reader and interpreted by the host just as if a US keyboard was being used to enter data.

- USB Downloader — This mode is the standard way of transferring unformatted, unpacketized data through the USB port.

Scan the codes in Figure 1–16 to set the appropriate USB communication setting:

FIGURE 1–16. USB Communication Settings Codes

M134_02
USB Keyboard Mode

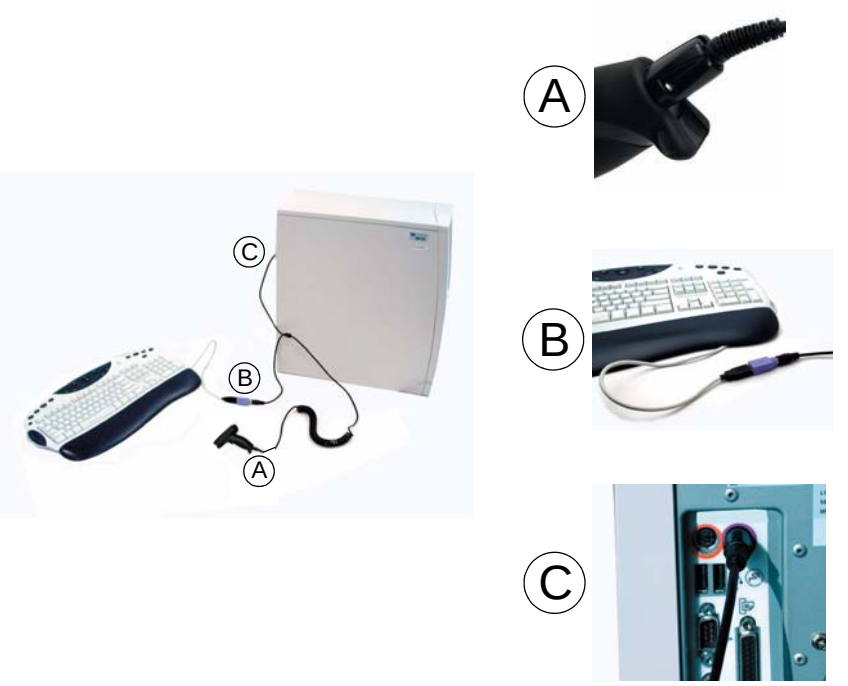
M133_01
USB Downloader

M049_03
Reset to USB Factory Defaults
Radio settings will not be reset with this code. The USB Factory Defaults include all the other settings, such as symbology, trigger, and so on.

PS2 Cable Installation

1. Power off the host computer.
2. Attach the end of the PS2 cable with the single connector (A) to the HE40T.
3. If an external keyboard exists, detach your keyboard from the host and connect the appropriate connector to the PS2 cable (B).
4. Connect the other connector to host computer into keyboard port (C). The HE40T is powered by the PS2 port and does not require a power supply.

FIGURE 1–17. Connecting the HE40T to the Host Computer



5. Set the HE40T to PS2 mode by scanning the PS2 Mode code in Figure 1–18.
6. Scan the Save Settings code.
7. Your HE40T reader is now ready. Open the appropriate application and begin scanning data.

Notice
Microscan does not recommend using Batch or Bluetooth Radio modes with the PS2 interface. You may need to disconnect the HE40T and the keyboard which may result in the host computer freezing.

Note: Microscan does not guarantee compatibility with all models of laptops.

PS2 Communication Settings

Scan the codes in Figure 1–18 to set the reader to the PS2 communication setting:

FIGURE 1–18. PS2 Communication Settings Codes

PS2 Mode

Reset to PS2 Factory Defaults

Save Settings

Note: The PS2 Factory Defaults include all the other settings, such as symbology, trigger, etc.

RS-232 Cable Installation

To connect the HE40T to your host computer via RS-232 interface:

1. Make sure the RS-232 cable is sufficiently attached to your reader (Figure 1–11 and Figure 1–13).
2. Connect the RS-232 interface cable to your host computer (Figure 1–19). If you are unsure of the proper location to connect the RS-232 cable, please consult the manual of your host computer.
3. The RS-232 interface should have come with a power supply. Plug the power supply adapter into the RS-232 interface cable (Figure 1–19), and then plug the power adapter into a wall socket (Figure 1–19). The RS-232 interface does not require additional power. However, if you are using the RS-232 interface and utilizing Batch functionality with the BH1/BH2 battery handle, the HE40T will recharge the battery whenever the reader is attached to a RS-232 cable that is plugged into a wall socket.

FIGURE 1–19. Connecting the HE40T Cabling

4. The HE40T will power on automatically.

5. Scan the RS-232 One Way Mode code and then the Save Settings code to configure the reader:

FIGURE 1–20. RS-232 One Way Mode Code & Save Settings Code

RS-232 One Way Mode Save Settings

6. Your HE40T reader should be ready for use. Open the application on your host computer that will receive scanned data and begin scanning.

Caution
You must use a Microscan-approved power adapter. Reader failure due to use of incorrect power adapter will void all warranties.

RS-232 Communication Data Bit Settings

Scan the codes in Figure 1–21 to set the appropriate data bit:

FIGURE 1–21. Data Bit Codes

M100_01
7 Data Bits

M101_01
8 Data Bits (Default)

RS-232 Communication Stop Bit Settings

Scan the codes Figure 1–22 to set the appropriate stop bit data:

FIGURE 1–22. Stop Bit Codes

M105_01
1 Stop Bit (Default)

M106_01
2 Stop Bits

RS-232 Communication Baud Rate Settings

Scan the codes in Figure 1–23 to set the appropriate baud rate:

FIGURE 1–23. Baud Rate Codes

M092_01
1200

M093_01
2400

M094_01
4800

M095_01
9600

M096_01
19200

M097_01
38400

M098_01
57600 (Default)

M099_01
115200

RS-232 Communication Parity Settings

Scan the codes in Figure 1–24 to set parity:

FIGURE 1–24. Parity Codes

Even

Odd

None (Default)

Cabled Reader — Timeout Settings

Scan the codes Figure 1–25 to set the amount of time a cabled HE40T will be enumerated before entering sleep mode in order to charge the battery:

FIGURE 1–25. Timeout Codes

Cabled Reader Timeout
2 Hours

Cabled Reader Timeout
Never (Default)

Bluetooth Radio Operation

Wireless HE40T readers feature a Bluetooth® wireless radio. The radio allows for point to point wireless communication with other Bluetooth devices that support serial port protocol (SPP). The following information will give you general instructions on connecting your HE40T to a desktop or laptop computer with a Bluetooth radio.

Connecting With A QuickConnect Code

If you purchased a CodeXML Bluetooth Modem or a Belkin® Bluetooth adapter from Microscan or from an authorized distributor, a QuickConnect code was included (Figure 1–26).

FIGURE 1–26. QuickConnect Code

The QuickConnect code has the information of the Bluetooth address (often a reference to go to the BD_ADDR) of that device. You can usually find the 12-character Bluetooth address somewhere on the device near the device's serial number (Figure 1–26). This code will link your HE40T directly to the desired Bluetooth device.

Note: While installing the Bluetooth Configuration Manager software that was included with your Bluetooth adapter, make sure to note the Virtual COM Port number the software assigned for the adapter (e.g. COM 10). This is the COM Port your HE40T will connect through.

To connect your reader, scan the Reset to Factory Defaults code in Figure 1–27. Then, the QuickConnect Code and your HE40T will automatically connect. You should also scan the Save Settings code if you want to save these settings.

Note: If the HE40T reader powers off without scanning the Save Settings code, you will lose your settings.

FIGURE 1–27. Reset to RF Factory Defaults Code

Reset to RF Factory Defaults

Save Settings

Radio Range and Transferring Data

The HE40T radio is a Class 1 device. If connected to another Class 1 device, the reader has roughly a 300 foot line of sight operating range. If connecting to a Class 2 or Class 3 device, the operating range may drop to match the lower range. Once a reader is connected, the application software on the host must be open to receive data.

When the HE40T detects the radio is out of range, the HE40T will store data on the reader's non-volatile memory. The reader will continue to try and send data until radio is back in range. Once the data is sent, the data will be erased from the reader's memory. If the radio cannot connect in 90 seconds, it will give an error beep. The reader will continue to try and connect until it has reached the programmable radio timeout setting.

The HE40T Bluetooth protocol allows for two forms of communication:

- One Way Mode — Defined as one way communication between the reader and host. One Way mode is only recommended when connecting to a device well within its specified range, or if connected to a device without an operating system (i.e., printer). There are two settings in this mode:
  - Max Range (Default) — Greater range but data reliability is lower
  - Max Reliability — Limits range but reliability is improved

FIGURE 1–28. RF One Way Mode Codes

M127_01
RF One Way Mode
(Max Range)

M128_01
RF One Way Mode
(Max Reliability)

Note: While robust, One Way Mode doesn't guarantee data integrity and you may have data loss when operating in the fringes of radio range or in the presence of radio interference.

- RF Two Way Mode — This is two way communication between the host and reader. This requires the implementation of software at the application level. The reader receives confirmation via packet protocol verification and is 100% reliable. Data will be retransmitted automatically if necessary.

FIGURE 1–29. RF Two Way Mode Codes

M129_02

RF Two Way Mode

Note: You will need to install application software that supports packet communication to operate in RF Two Way Mode. Microscan offers the CodeXML Bluetooth Modem and a Windows or Pocket PC version of software called CodeXML Router - Bluetooth Edition (BE) that provides for end-to-end Bluetooth handshakes that eliminate out-of-range data loss. CodeXML Router - BE also offers Bluetooth to keyboard wedge communication for applications that require keyboard port input.

If you are using the CodeXML Bluetooth modem, you must use RF Two Way Mode.

Save Settings

Scan the code in Figure 1–30 to make the RF settings permanent on the reader:

FIGURE 1–30. Save Settings

M188_02

Save Settings

Disconnecting from the Reader

You can force a disconnect by reading the disconnect code in Figure 1–31 (the HE40T may not appear disconnected in the slave Bluetooth connection manager for 10 – 15 seconds after the command is issued). The HE40T will also disconnect after 90 seconds of inactivity.

Note: You may change the radio frequency sleep timeout setting; however, it may reduce battery life.

FIGURE 1–31. Bluetooth Disconnect Code

M114_02
Bluetooth Disconnect

Reconnecting to the Reader

If the device is saved in RF mode, it will automatically reconnect when the HE40T:

- Is powered up
- Wakes from sleep mode
- Reads another code

Bluetooth Radio — Auto Connect & Auto Disconnect

After coming out of sleep mode or after powering up (you need to save the connection), the HE40T tries to auto connect with the last Bluetooth radio it was connected with. You may always connect by scanning a QuickConnect code.

Scan the codes in Figure 1–32 to enable/disable the Auto Connect feature for the Bluetooth radio:

FIGURE 1–32. Bluetooth Radio Auto Connect & Auto Disconnect

M068_01
Bluetooth Radio Auto Connect On (Default)

M067_01
Bluetooth Radio Auto Connect Off

The Auto Disconnect feature is used when multiple HE40T readers are connecting to the same Bluetooth Radio. By enabling Auto Disconnect, the HE40T radio disconnects after each data transmission, allowing other radios to connect.

Scan the codes in Figure 1–33 to enable/disable the Auto Disconnect feature for the Bluetooth radio:

FIGURE 1–33. Bluetooth Radio Auto Connect & Auto Disconnect (On & Off)

M066_01
Bluetooth Radio
Auto Disconnect On

M065_01
Bluetooth Radio
Auto Disconnect Off (Default)

Bluetooth Radio — Timeout Settings (Uncabled)

Scan the codes in Figure 1–34 to set the period of time before the Bluetooth Radio will go into sleep mode from inactivity:

Note: Increasing the time before the reader will timeout will decrease battery life. If the reader has power (USB cable, power cable, etc.), it will disconnect based on cable timeout settings.

FIGURE 1–34. Bluetooth Radio Timeout Settings (Uncabled)

M125_01
90 Seconds
(Default)

M121_01
5 Minutes

M122_01
10 Minutes

M123_01
15 Minutes

M124_01
30 Minutes

M119_01
1 Hour

M120_01
2 Hours

Bluetooth Radio — Out of Range Notification Settings

Scan the codes in Figure 1–35 to enable a beep or vibrate notification when the radio goes out of range:

FIGURE 1–35. Bluetooth Radio Out of Range Notification Settings

M583_01 Bluetooth - Out of Range Beep: On

M582_01 Bluetooth - Out of Range Notify with Vibrate: On

M587_01 Bluetooth - Out of Range Vibrate & Beep: On

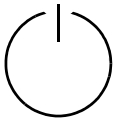
M581_01 Bluetooth - Out of Range Vibrate and/or Beep: Off (Default)

HE40T Feedback

The HE40T features two LEDs on the front of the reader. These LEDs give feedback on different functionality of the HE40T reader. Each LED has a small icon underneath that represents the following:

FIGURE 1–36. HE40T LEDs

Memory / Connection Icon



Battery or Power icon

The HE40T reader will automatically flash battery or power status every 15 seconds. Each LED can show three colors: Green, Amber, or Red. The colors will vary depending on the message the reader is sending:

- Green = 50% - 100% capacity of battery
- Amber = 20% - 50% capacity of battery or 20% - 99% of memory available
- Red = 0% - 20% capacity of battery or no memory available

The HE40T also emits beeps or vibrates for user feedback. Use the information in Table 1–1 and Table 1–2 to better understand your reader's feedback.

TABLE 1–1. Normal Operation Feedback

	Memory Connection LED	Battery LED	Sound
HE40T Successfully Powers Up	Flash Green	Flash Green	1 Beep
HE40T Successfully Enumerates with Host via USB Cable	None	Solid Green	1 Beep
Attempting to Decode	None	Battery Status	None
Successful Decode and Data Transfer via cable	None	Solid Green	1 Beep
Successful Decode and Data Store	Memory Status	None	1 Beep
Batch Mode Memory Full	Solid Red	None	3 Beeps
Configuration Code Successfully Decoded and Processed	None	None	1 Beep, slight pause, 1 Beep
Configuration Code But Was Not Successfully Decoded and Processed	Flash Red 3 Times	Flash Red 3 Times	3 Beeps

TABLE 1–2. Bluetooth Radio Feedback

	Memory Connection LED	Battery LED	Sound
Attempting to Connect	Flashes Blue	Solid Green	None
Failed to Connect	None	None	4 Beeps
Connected	Flashes Blue every 15 seconds	Flashes Battery Status every 15 seconds	None
Sending Data	Flashes Memory Status	None	None

Targeting and Reading Techniques

The HE40T utilizes digital camera technology to take a picture of a symbol. Once an image is captured, the HE40T utilizes advanced decoding algorithms to extract data from the captured image.

The reader features left and right triggers. These triggers may be programmed to perform various features. The reader is shipped with the left trigger and right trigger functioning as a decode symbol command.

The H2 Cabled Handle and BH1/BH2 Battery Handle each feature a trigger on the handle. The two triggers on the top of the reader also work when the handle is attached.

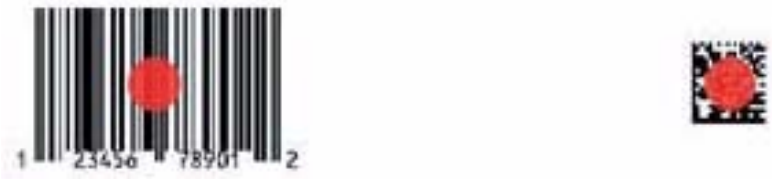
FIGURE 1–37. Handle and Trigger

Note: The trigger on the handle attachment is light. Squeezing too hard may damage the reader.

To read a symbol with the HE40T:

1. The HE40T features omnidirectional decoding. Center the symbol in any orientation within the laser dot aiming pattern (Figure 1–38).

FIGURE 1–38. Centering the Symbol Within the Laser Dot



Note: The HE40T can read a symbol that is not centered; however, the HE40T performs best when a code is centered.

The HE40T features omnidirectional decoding. Aiming the targeting laser at the center of the symbol ensures the best performance for decoding. The HE40T can read a symbol that is not centered and, under certain circumstances if multiple symbols are within the field of view, the user must take care of which symbol is read. The decoder will start from the center, but if the center symbol is not decodable, it may decode another symbol, if multiple symbols are present within the field of view.

2. The HE40T was developed to decode both very small 2-D symbols and larger 1-D symbols. The reader features two imagers to create an innovative dual decode zone. The HE40T features a high speed processor and decodes both zones simultaneously, by default. The reader has one imager focused on a near-field for smaller codes (optimal focal point is 4 inches) and one imager focused on a far-field for larger codes (optimal focal point 9 inches). To read smaller symbols, move the HE40T closer to the symbol. To read larger symbols, move the reader farther away from the symbol. The entire HE40T decode zone varies between two (2”) and twenty (20+”) or more inches.

3. Hold the HE40T still - DO NOT SWIPE OR MOVE THE READER. Press the trigger until the HE40T beeps, indicating the code has been successfully decoded.

4. To read a symbol with a shiny background, hold the HE40T slightly tilted to avoid the reflected light from the LEDs.

5. The reader may be optimized to your specific environment by scanning codes in Chapter 6, “Advanced Decoder Performance”.

Imager Field of View and Resolution

The HE40T's megapixel imager, with a dual field optical system, can provide you the best image for 1-D and 2-D applications.

The 1.3 Million Pixel imager is divided into near field and far field decode zones. In each zone, the resolution is 1024 x 640 pixels (see Figure 1.25). In this mode of operation the reader utilizes the highest resolution creating the widest working range on bar code and 2-dimensional symbols of all densities. The trade-off is the amount of time the reader spends processing the image. This time can be reduced by optimization functions:

- If only the near field is used (small, high density symbols), the far field image can be ignored.
- If only the far field is used (large, lower density symbols), the near field can be ignored.
- Further optimization may be obtained by "windowing" the field to a smaller area.

FIGURE 1–39. SXGA Imaging Area

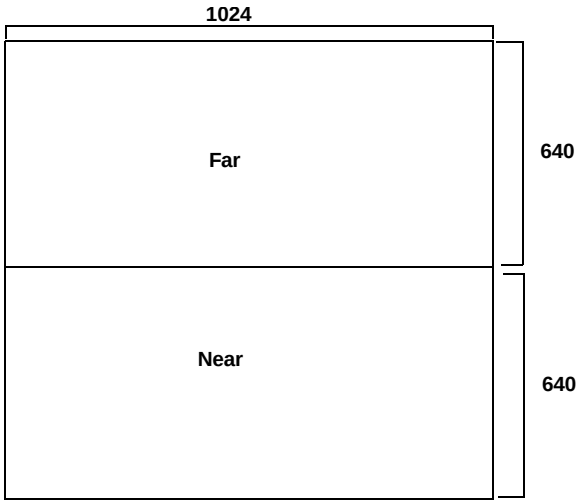
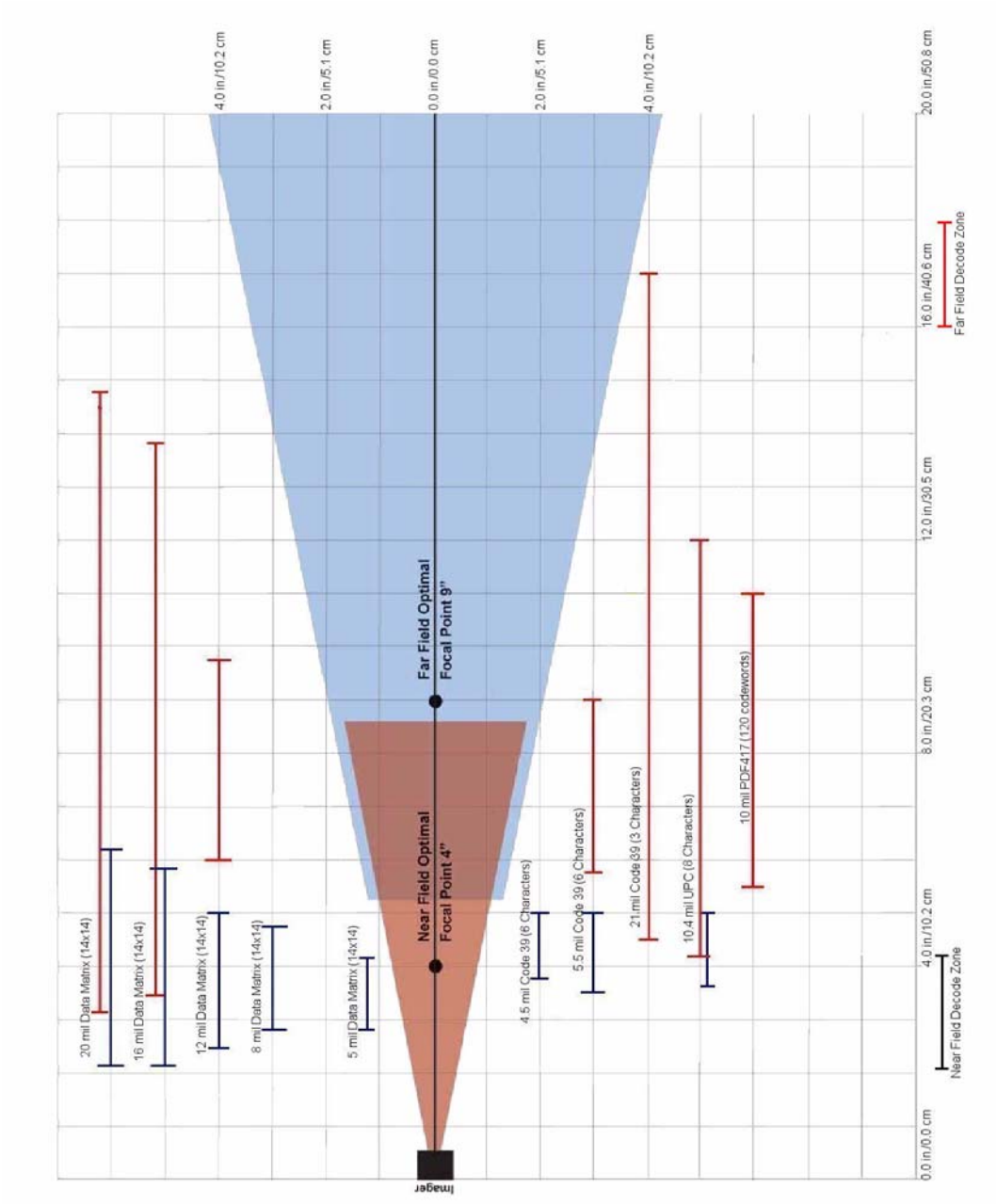


FIGURE 1–40. Imager Focal Lengths



CHAPTER 2

Optimization and Trigger Programming

The HE40T comes with SXGA mode and its dual field optical system activated for all the triggers. From the moment you turn on your HE40T, you are taking full advantage of the dual path 1.3 megapixel imager and the 400 MHz processor with Microscan' industry leading DPM technology.

The HE40T is easily customizable; each trigger can be independently programmed for different behavior.

- Near Field (NF) — The nearest field of the HE40T's two image fields. It has an optimal focal point of 4" (101.6 mm) away from the lens of the reader. The width of the Field of View is 1.5" (38.1 mm) at the optimal focus point.
- Far Field (FF) — The farthest field of the HE40T's two image fields. It has an optimal focal point of 9" (228.6 mm) away from the lens of the reader. The width of the Field of View is 4" (101.6 mm) at the optimal focus point.

The following sections provide you with the ability to program individual triggers, or all triggers, to perform with different parameters.

Left Trigger Programming

Scan the codes in Figure 2–1 to set the left trigger functionality:

FIGURE 2–1. Left Trigger Programming Codes

M178_01

Read Codes with Both Imagers (Default)

M176_01

Read with Far-Field Imager ONLY

M177_01

Read with Near-Field Imager ONLY

Right Trigger Programming

Scan the codes in Figure 2–2 to set the right trigger functionality:

FIGURE 2–2. Right Trigger Programming Codes

M185_01

Read Codes with Both Imagers (Default)

M183_01

Read Code with Far-Field Imager Only

M184_01

Read Code with Near-Field Imager ONLY

Handle Trigger Programming

Scan the codes in Figure 2–1 to set the handle trigger functionality:

FIGURE 2–3. Handle Trigger Programming Codes

Read Codes with Both Imagers (Default)

Read Code with Far-Field Imager ONLY

Read Code with Near-Field Imager ONLY

Continuous Scan Settings

Scan the codes in Figure 2–4 to turn continuous scanning on/off:

FIGURE 2–4. Continuous Scan On/Off Codes

Both Near & Far Field On

Near Field Only On

Far Field Only On

Off (Default)

Note: This function is only recommended for short term use because of battery consumption (see “Continuous Scan — Sleep Timeout” on page 2-4).

Continuous Scan — Sleep Timeout

Scan the codes in Figure 2–5 to set the amount of time a cabled HE40T will operate in continuous scan mode before entering sleep mode:

FIGURE 2–5. Continuous Scan Sleep Timeout Codes

M136_01
Cabled - 2 Hours

M137_01
Cabled - Always (Default)

Scan the codes in Figure 2–6 to set the amount of time an uncabled HE40T will operate in continuous scan mode before entering sleep mode:

FIGURE 2–6. Continuous Scan - Duration Before Entering Sleep Mode

M145_01
Uncabled - 5 Minutes (Default)

M146_01
Uncabled - 15 Minutes

M147_01
Uncabled - 30 Minutes

Note: This function is only recommended for short term use because of battery consumption.

Continuous Scan — Trigger Delays

Scan the codes in Figure 2–7 to set delay time between scans:

FIGURE 2–7. Continuous Scan Trigger Delay Codes

M142_01
0 Seconds (Default)

M143_01
1 Second

M144_01
3 Seconds

Continuous Scan — Duplicate Scan Delay

Scan the codes in Figure 2–8 to set the delay time for reading duplicate codes:

FIGURE 2–8. Continuous Scan Duplicate Scan Delay Codes

M222_01
0 Seconds (Default)

M223_01
1 Second

M224_01
3 Seconds

Motion Detection Scan Settings

Scan the codes in Figure 2–8 to set the reader to read when it detects motion in its scanning zone:

FIGURE 2–9. Motion Detection On/Off Codes

M701_01
On

M702_01
Off (Default)

CHAPTER 3

HE40T Programming: Symbology Settings

Use the programming codes in this chapter to change the symbology settings on the HawkEye™ 40T.

To reset the reader to factory defaults or to save the current settings, scan one of the codes in Figure 3–1 or Figure 3–2:

FIGURE 3–1. Reset to Factory Defaults (USB or PS2)

M049_03

Reset to USB Factory Defaults
Radio setting will not be reset with this code

M060_03

Reset to PS2 Factory Defaults
Radio setting will not be reset with this code

M188_02

Save Settings

FIGURE 3–2. Reset to Factory Defaults (RS-232 or RF One Way)

M418_02

Reset to RS-232 Factory Defaults
Radio setting will not be reset with this code

M684_01

Reset to RF One Way Factory Defaults

M052_01

Clear All CodeXML Rules

Readers are shipped from manufacturing with default communication settings that are hardware dependent.

Note: If you do not save your settings, and the HE40T loses power, you will lose your settings.

Codabar Symbology

Scan the codes in Figure 3–3 to enable/disable Codabar symbology settings:

FIGURE 3–3. Codabar Symbology Codes

Codabar On

Codabar Off (Default)

Sample Codabar

Code 39 Symbology

Scan the codes in Figure 3–4 to enable/disable Code 39 symbology settings:

FIGURE 3–4. Code 39 Symbology Codes

Code 39 On

Code 39 Off (Default)

Sample Code 39 Code

Code 93 Symbology

Scan the codes in Figure 3–5 to enable/disable Code 93 symbology settings:

FIGURE 3–5. Code 93 Symbology Codes

Code 93 On

Code 93 Off (Default)

Sample Code 93 Code

Code 128 Symbology

Scan the codes in Figure 3–6 to enable/disable Code 128 symbology settings:

FIGURE 3–6. Code 128 Symbology Codes

Code 128 On

Code 128 Off (Default)

Sample Code 128 Code

Interleaved 2 of 5 Symbology

Scan the codes in Figure 3–7 to enable/disable Interleaved 2 of 5 symbology settings:

FIGURE 3–7. Interleaved 2 of 5 Symbology Codes

Int 2 of 5 On

Int 2 of 5 Off (Default)

Sample Int 2 of 5 Code

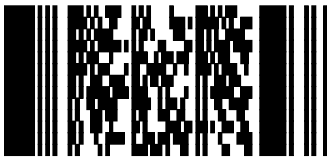
PDF 417 Symbology

Scan the codes in Figure 3–8 to enable/disable PDF 417 symbology settings:

FIGURE 3–8. PDF417 Symbology Codes

PDF 417 On

PDF 417 Off (Default)


Sample PDF 417 Code

QR Code Symbology

Scan the codes in Figure 3–9 to enable/disable QR/Micro QR Code symbology settings:

FIGURE 3–9. QR Code Symbology Codes

QR/Micro QR On

QR/Micro QR Off (Default)

Sample QR Code

UPC/EAN/JAN

Scan the codes in Figure 3–10 to enable/disable UPC/EAN/JAN symbology settings:

FIGURE 3–10. UPC/EAN/JAN Symbology Codes

UPC On

UPC Off (Default)

UPC Extension On

UPC Extension Off (Default)

Sample UPC A Code

All 1D Bar Codes

Scan the codes in Figure 3–11 to enable all supported 1D bar codes (Code 128, Code 39, Code 93, I 2 of 5, Codabar, UPC).

FIGURE 3–11. All 1D Codes On/Off

All 1D Codes On

All 1D Codes Off

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CHAPTER 4

Department of Defense Unique Identification (UID)

UID is a mandatory Department of Defense requirement on all solicitations issued January 1, 2004. This policy mandates the use of Data Matrix symbology on a large class of equipment and parts procured by DoD. The HE40T reader complies with Department of Defense Standard Practice Identification (MIL-STD-130).

Once the HE40T decodes the Data Matrix symbol, and, if the Unique Item Identifier (UII), Current Part Number (CPN), and Lot/Batch Number (LBN) are turned on, it checks the ISO 15434 syntax with ISO 15418 (ANSI MH10.8.2 - AI & DI) and ISO 21849 (ATA - TEI) semantics to construct UII, CPN, and LBN.

DoD UID Settings

The following UID data output options are applicable to Data Matrix only and have no effect on other symbologies:

- UII/CPN DM On — The HE40T is configured to construct Unique Item Identifier (UII), Current Part Number (CPN), and Lot/Batch Number (LBN). If there is a valid UII/CPN/LBN, a UII/CPN/LBN string is outputted. For decoded Data Matrix with invalid UII/CPN/LBN, HE40T stops image acquisition without an output string. The UII/CPN DM On option will have the following output format:

TABLE 4–1. UII/CPN DM On Options

Content of Decoded Data Matrix	UII/CPN
Valid UII	UII:UII_data Example: UII:12345678
Valid CPN	CPN:CPN_data Example: CPN:87654321
Valid LBN	LBN:LBN_data Example: LBN:87654321
Valid UII and CPN	UII:UII_data CPN:CPN_data Example: UII:12345678 CPN:87654321
Valid UII and LBN	UII:UII_data LBN:LBN_data Example: UII:12345678 LBN:87654321
Valid UII and invalid CPN	UII:UII_data (CPN ERROR) Example: UII:12345678 (CPN ERROR)
Valid UII and invalid LBN	UII:UII_data (LBN ERROR) Example: UII:12345678 (LBN ERROR)
Invalid UII and valid CPN	(UII ERROR) CPN:CPN_data Example: (UII ERROR) CPN:87654321
Invalid UII and valid LBN	(UII ERROR) LBN:LBN_data Example: (UII ERROR) LBN:87654321
None of the above (Invalid UII; Invalid CPN; Invalid LBN; Invalid UII and Invalid CPN; Invalid UII and Invalid LBN)	No output data

- UII/CPN DM with Data Fields — The HE40T is configured to construct UII/CPN/LBN with all the data fields. The UII/CPN with Data Field option has the following output format:

  UII/CPN; DF0; DF1; DF2; DF3; DF4; DF5; DF6; DF7

TABLE 4–2. UII/CPN DM with Data Field On

Content of Decoded Data Matrix	UII/CPN	DF0
Valid UII	UII:UII_data Example: UII:12345678	Constructed UII type Example: Contruct_1
Valid CPN	CPN:CPN_data Example: CPN:87654321	Constructed CPN type Example: PNR
Valid LBN	LBN:LBN_data Example: LBN:87654321	Constructed LBN type Example: 30T
Valid UII and CPN	UII:UII_data CPN:CPN_data Example: UII:12345678 CPN:87654321	Constructed UII/CPN type Example: Construct_1/PNR
Valid UII and LBN	UII:UII_data LBN:LBN_data Example: UII:12345678 LBN:87654321	Constructed UII/LBN type Example: Construct_1/30T
Valid UII and Invalid CPN	UII:UII_data (30P ERROR: xxxx)	Constructed UII type Example: Construct_1
	UII:UII_data (PNR ERROR: xxxx)	
Valid UII and Invalid LBN	UII:UII_data (240 ERROR: xxxx)	
	UII:UII_data (30T ERROR: xxxx)	
Invalid UII and Valid CPN	(UII ERROR: xxxx) CPN:CPN_data	Constructed CPN type: 30P, PNR, 240
Invalid UII and Valid LBN	(UII ERROR: xxxx) LBN:LBN_data	Constructed LBN type: 30T
Invalid UII	(UII ERROR: xxxx)	Original decoded data
	(15434 ERROR: xxxx)	
	Example: (UII ERROR: DATA ELEMENT CHARACTER)	
Invalid CPN	(30P ERROR:xxxx)	Original decoded data
	(PNR ERROR:xxxx)	
Invalid LBN	(240 ERROR:xxxx)	
	(30T ERROR:xxxx)	
	(15434 ERROR: xxxx)	
Invalid UII and Invalid CPN	(UII ERROR: xxxx) (30P ERROR: xxxx)	Original decoded data
	(UII ERROR: xxxx) (PNR ERROR: xxxx)	
Invalid UII and Invalid LBN	(UII ERROR: xxxx) (240 ERROR: xxxx)	
	(UII ERROR: xxxx) (30T ERROR: xxxx)	

The following options apply to all symbologies:

- UII/CPN On for All Symbologies — The HE40T is configured to construct UII/CPN/LBN for all symbologies. For decoded symbologies without valid UII/CPN/LBN, the HE40T stops image acquisition without an output string.
- UII/CPN Off — The HE40T is back to normal decoder behavior without constructing UII/CPN/LBN.

FIGURE 4–1. UII Codes

UII/CPN DM On

UII/CPN DM with Data Field

UII/CPN On for All Symbologies

UII/CPN Off

Output Format: UII/CPN; DF0; DF1; DF2; DF3; DF4; DF5; DF6; DF7

- DF1 - DF7: The fields display data elements:
  - If there are **less than** seven data elements, an empty string is filled in at the end.
  - If there are **more than** seven elements, only first seven elements are displayed.
- There is a space between UII and CPN in both tables (UII:12345678 CPN:87654321).
- The constructed UII type can be Contruct_1, Contruct_2, Construct_1_2, or IUID_EQUIVALENT.
- The constructed CPN type can be PNR, 30P, or 240. The constructed LBN type is 30T.

– An error message, if the process fail based on corresponding configuration with Data Field on. List of error messages:

15434 ERROR: DATA ELEMENT SEPARATOR
15434 ERROR: DOUBLE TRAILER
15434 ERROR: FORMAT INDICATOR
15434 ERROR: HEADER - 1ST POSITION
15434 ERROR: HEADER - 2ND POSITION
15434 ERROR: HEADER - 3RD POSITION
15434 ERROR: HEADER - 4TH POSITION
15434 ERROR: HEADER - GROUP SEPARATOR
15434 ERROR: TRAILER - END OF TRANSMISSION
15434 ERROR: TRAILER - RECORD SEPARATOR
PNR ERROR: TOO LONG
PNR ERROR: TOO SHORT
PNR ERROR: CHARACTER
30P ERROR: TOO LONG
30P ERROR: TOO SHORT
30P ERROR: CHARACTER
240 ERROR: TOO LONG
240 ERROR: TOO SHORT
240 ERROR: CHARACTER
UII ERROR: DATA ELEMENT CHARACTER
UII ERROR: DATA ELEMENT TOO LONG
UII ERROR: DATA ELEMENT TOO SHORT
UII ERROR: LOWER CASE CHARACTER
UII ERROR: NEED UII ELEMENT FIRST
UII ERROR: SPACE AFTER TEI DATA QUALIFIER
UII ERROR: TEI DATA QUALIFIER
UII ERROR: UII ELEMENT INCOMPLETE
UII ERROR: WRONG FORMAT INDICATOR
UII ERROR: UII STRING TOO LONG

- ; — A field separator.

5

CHAPTER 5

Reader Feedback and Special Settings

Volume and Vibration Settings

Scan the codes in Figure 5–1 to set vibration mode:

FIGURE 5–1. Volume & Vibration Codes

M107_01
Vibrate On
Beep On

M109_01
Vibrate On
Beep Off

M108_01
Vibrate Off
Beep On (Default)

Scan the codes in Figure 5–2 to set your reader's volume:

FIGURE 5–2. Volume Codes

M110_01
Beep Off

M111_01
Beep Low

M112_01
Beep High (Default)

Laser Settings

Scan the codes in Figure 5–3 to turn laser targeting on/off:

FIGURE 5–3. Laser Targeting On/Off

M055_01
On (Default)

M054_01
Off

Scan the codes in Figure 5–4 to set the brightness of the HE40T laser:

FIGURE 5–4. Laser Brightness

M058_01
High (Default)

M057_01
Medium

M056_01
Low

Reader Power Off Settings

Scan the codes in Figure 5–5 to set the amount of time before a reader powers down:

FIGURE 5–5. Reader Power Off Codes

M691_02
1 Hour

M688_02
2 Hours
(Default)

M689_02
4 Hours

Press and hold (1 second) any red trigger on the reader to power up a reader.

Reader ID and Firmware Version

To find out the Reader ID and firmware version, open a text editor program (i.e., Notepad, Microsoft Word) and read the code in Figure 5–6:

FIGURE 5–6. Reader ID & Firmware Version

Reader ID & Firmware

Note: For readers with a Bluetooth Radio, the Reader ID is also your Bluetooth Radio PIN #.

You will get a text string with your firmware version and HE40T ID number:

Xap/iVVVVWWWWXXXXSSSSSSSSSSPXXXXXXXXMicroscanZ.Z.Z.ZZ

- Xap/i — Microscan Internal ID (not applicable)
- VVVV — The application firmware version number
- WWWW — The bootloader firmware version number
- XXXX — The radio firmware version number
- SSSSSSSSSS — The reader's serial number (ten digits)
- P — Is "A" if running firmware is the application, "B" if bootLoader
- XXXXXXXX — Microscan Internal ID (not applicable)
- MicroscanZ.Z.Z.ZZ — Microscan software release version

Example

Xap/i330831460604001002950 5A17?0016?Microscan1.0.1.7

Reader Settings Locked & Unlocked

Scan the codes in Figure 5–7 to lock or unlock the current settings on your reader:

FIGURE 5–7. Reader Settings Locked/Unlocked

Reader Settings Locked

Reader Settings Unlocked

Note: Prefix and Suffix programming codes, memory transfer and delete commands, “Clear All CodeXML Rules” and “Suffix - Erase/None” commands are not locked by this feature.

Keyboard Support

- US English (Default) — Use this option with the U.S. keyboard to display characters of ASCII values from 1 to 126. Non-printable characters with ASCII values from 1 to 31 are shown as symbols in Windows. You can enter them by holding down the Alt key, typing the digits of the ASCII value using the numeric keypad, and then releasing the Alt key.
- US English With Leading 0 — Use this option with the U.S. keyboard to display full ASCII characters the same way as they are entered by typing Alt + 0 + ASCII value from the numeric keypad. Non-printable characters are shown as “action” in Windows. For example, typing Alt + 0 + 13 results in the Carriage Return that moves the cursor to the beginning of the next line.
- French — Use this option with the French keyboard to display ASCII characters the same way as the US English With Leading 0 option with the U.S. keyboard.
- German — Use this option with the German keyboard to display ASCII characters the same way as the US English With Leading 0 option with the U.S. keyboard.

- Universal Keyboard — Use this option to support any type of keyboard; however, requires more time for displaying each character. The characters are displayed the same way as the US English With Leading 0 option with the U.S. keyboard.

Scan the codes in Figure 5–8 to set appropriate keyboard mapping:

FIGURE 5–8. Keyboard Mapping Codes

M172_01
US English (Default)
No Leading 0

M602_01
US English
With Leading 0

M606_01
US English - ctrl + char
For Non-Printable ASCII

M603_01
French

M604_01
German

M605_01
Japanese

M173_01
Universal Keyboard

M171_01
Custom Keyboard
(Request that map be installed)

Time Stamp Settings

The HE40T also has a separate time set feature for logging data (defaulted off in shipped readers). If you enable the time set feature, every time the HE40T is powered off or rebooted, the timer will stop.

Scan the codes in Figure 5–9 to turn the time set on/off:

FIGURE 5–9. Time Set On/Off

On

Off (Default)

Note: The time set feature is in relative time from when the reader was last powered up.

6

CHAPTER 6

Advanced Decoder Performance

Turbo Dot Peen Mode Settings

The HE40T with the default settings offers the best overall performance for Data Matrix DPM reading. For reading dot peen marks with cell size larger than 15 mils or 0.015 inches, it is often possible to improve the reading performance by enabling the Turbo Dot Peen mode. It is also recommended that you use Read With Near Field Only mode in conjunction with the Turbo Dot Peen On mode to achieve the best reading response.

Note: Turbo Dot Peen mode should not be used for reading small marks (dot peen or others) as it may increase the processing time and reduce the robustness of reading small marks.

FIGURE 6–1. Turbo Dot Peen Mode Codes

On

Off (Default)

CHAPTER 7 Adding a Prefix or Suffix

Prefix Settings

If you scan the codes in Figure 7–1, you may lose your current settings. Make sure you save settings on your reader before scanning the prefix codes. If you scan more than one prefix, you will receive each scanned prefix in your scanned data (i.e., if you scan the comma prefix twice, you will get two comma prefixes). Scan the codes in Figure 7–1 to set the appropriate prefix.

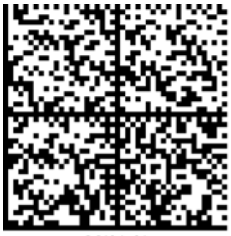
FIGURE 7–1. Prefix Codes

M159_02
Prefix - Comma

M164_02
Prefix - Space

M166_01
Prefix - Tab (USB/PS2)

M218_02
Prefix - Tab (RS-232)


M404_01
Prefix - Erase
This code will erase all prefix data

M214_02
Prefix - Carriage Return Line Feed (RS-232)

M188_02
Save Settings

Suffix Settings

If you scan the codes in Figure 7–2 or Figure 7–3, you may lose your current settings. Make sure you save settings on your reader before scanning the Suffix codes. If you scan more than one suffix, you will receive each scanned suffix in your scanned data (i.e., if you scan the comma suffix twice, you will get two comma suffixes). Scan the codes in Figure 7–2 or Figure 7–3 to set the appropriate suffix.

FIGURE 7–2. Suffix Codes

M165_04
Suffix - Space

M160_04
Suffix - Comma

M161_04
Suffix - Enter (USB/PS2)

M170_04
Suffix - Carriage Return Line Feed (RS-232)

M168_04
Suffix - Carriage Return (RS-232)

M169_04
Suffix - Line Feed (RS-232)

M188_02
Save Settings

FIGURE 7–3. Suffix Codes (Continued)

M219_04
Suffix - Tab (RS-232)

M167_04
Suffix - Tab (USB/PS2)

M405_02
Suffix - Erase / None
This code will erase all suffix data

M188_02
Save Settings

Erase Prefix and Suffix Settings

Scan the codes in Figure 7–4 to erase all prefix and suffix data:

FIGURE 7–4. Erase Prefix & Suffix Codes

M406_02
Erase Prefix & Suffix Data

CHAPTER 8

Maintenance and Troubleshooting

Reset Reader to Factory Defaults

Scan the codes in Figure 8–1 and Figure 8–2 to reset the reader:

FIGURE 8–1. Reset Reader Codes

M049_03

Reset to USB Factory Default Settings (Radio settings will not be reset with this code)

M060_03

Reset to PS2 Factory Default Settings (Radio settings will not be reset with this code)

M418_02

Reset to RS-232 Factory Default Settings (Radio settings will not be reset with this code)

M684_01

Reset to RF One Way Factory Default Settings

M692_01

Bootloader Mode is utilized to download new version of bootloader firmware and custom applications

Bootloader Mode

FIGURE 8–2. Reset Reader Codes (Continued)

M052_01
Clear All CodeXML Rules
Prefix & Suffix

M071_01
Clear All Stored Data

M188_02
Save Settings

Note: If you scan the codes in Figure 8–1 and Figure 8–2, you may lose your current settings. Therefore, make sure you save settings on your reader before scanning the codes in Figure 8–1 and Figure 8–2.

General Safety Information

Repairs and Adjustments — Only those individuals authorized by Microscan should attempt to make repairs or adjustments to HE40T equipment. If the reader casing is opened, the warranty is voided.

Power Supply — Use only the particular power supply provided for use with a specific reader when operating Microscan equipment.

Accessories — Only those accessories approved by Microscan should be utilized with Microscan equipment. Non-compliance with any of the above may result in:

- Injury to individuals handling the equipment
- Damage to the equipment
- Voiding of the maintenance contract

Bootloader mode is utilized to download new versions of bootloader firmware and custom applications.

Lasers — The HE40T utilizes a laser FOR TARGETING PURPOSES ONLY. If the laser is activated, do not stare into the beam.

Warning
Charge the Lithium Ion Battery in the BH1/BH2 with Microscan' cables ONLY. Do not open battery, dispose of in fire, or short circuit; it may ignite, explode, leak, or get hot, causing personal injury.

HE40T Accessories

Please call your Microscan representative for more information on accessories.

HE40T Maintenance

The HE40T operates efficiently and reliably and needs only a minimum of maintenance to operate. A few tips are given below for maintenance suggestions.

Cleaning the HE40T's Window

The HE40T's window should be clean to allow the best performance. The window is the clear plastic piece inside the head of the Reader. Do not touch the window. Your HE40T uses CMOS technology that is much like a digital camera. A dirty window may stop the HE40T from reading codes.

If the window becomes dirty, clean it with a soft, non-abrasive cloth or a facial tissue (no lotions or additives) that has been moistened with water. You may use a mild detergent to clean the window, but the window should be wiped with a water moistened cloth or tissue after using the detergent.

The HE40T's housing may be cleaned in the same way.

For applications that require cleaning with disinfectant, please use products with the following ingredients:

- Isopropyl Alcohol
- Ethyl Alcohol (Denatured Grade)

Microscan does not recommend using bleach.

APPENDIX A

Programming Codes for Alternate OS Compatibility

Use the following procedure to program the HE40T to work with the Mac platform, running under OS X:

1. Scan the code Figure A–1 to restore USB factory default settings:

FIGURE A–1. Reset to USB Factory Defaults Code

M049_03

Reset to USB Factory Defaults Settings

2. Scan the three programming codes (Figure A–2) in the following order:
   - Microsoft Windows CE, Linux, Mac OS X code
   - USB Keyboard Mode code
   - Save Settings code

FIGURE A–2. Scan codes in order, top to bottom

M585_01

Microsoft Windows CE, Linux, Mac OS X

M134_01

USB Keyboard Mode

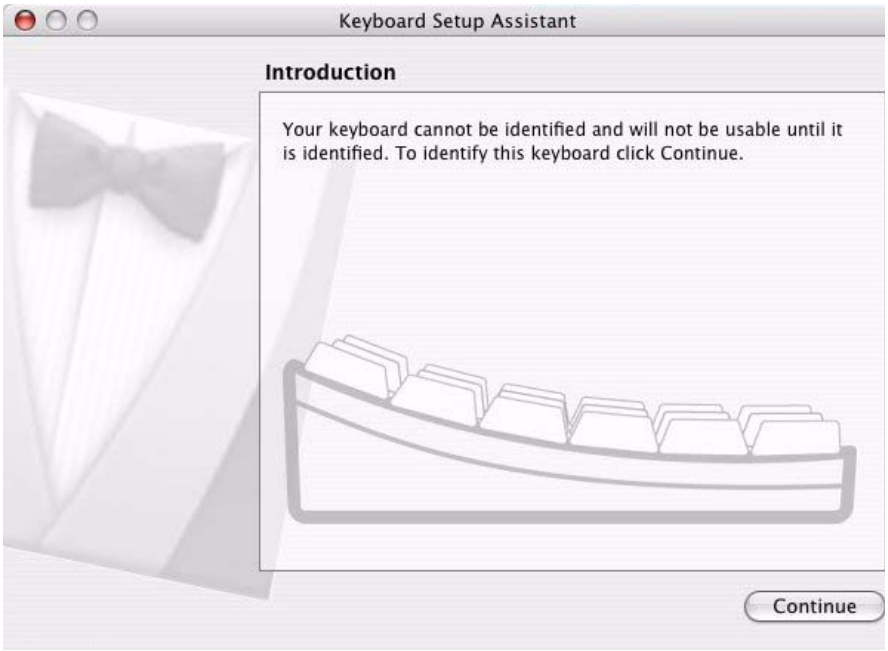
M188_02

Save Settings

3. Cycle the power on the HE40T by removing and re-installing the battery in the unit.

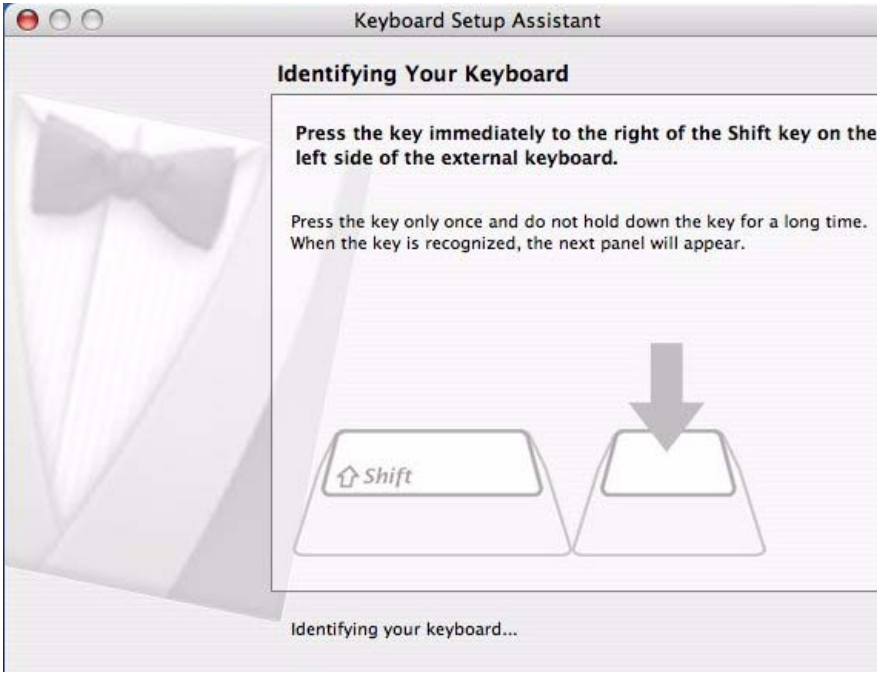
4. Plug the USB cable into the Mac processor (not the keyboard). The screen in Figure A–3 is displayed:

FIGURE A–3. Keyboard Setup Assistant Screen - Introduction


Keyboard Setup Assistant
Introduction
Your keyboard cannot be identified and will not be usable until it is identified. To identify this keyboard click Continue.
Continue

5. Click Continue. The screen in Figure A–4 is displayed:

FIGURE A–4. Keyboard Setup Assistant Screen - Identifying Keyboard


Keyboard Setup Assistant
Identifying Your Keyboard
Press the key immediately to the right of the Shift key on the left side of the external keyboard.
Press the key only once and do not hold down the key for a long time. When the key is recognized, the next panel will appear.
Shift
Identifying your keyboard...

6. Scan the code in Figure A–5:

FIGURE A–5. Code

Microscan

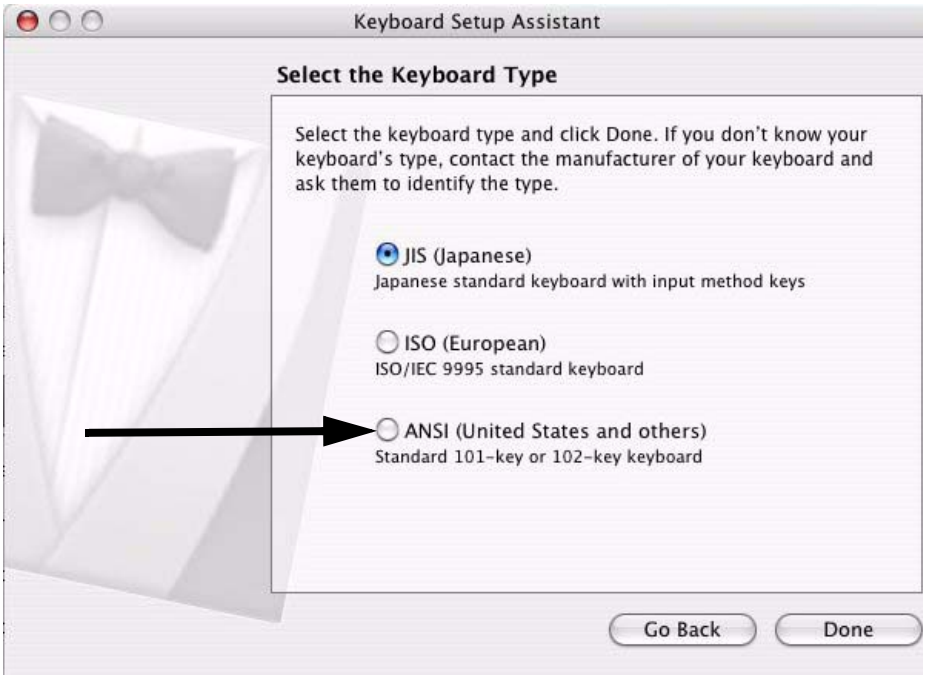
The screen in Figure A–6 is displayed:

FIGURE A–6. Keyboard Setup Assistant Screen - Cannot Identify Keyboard

Keyboard Setup Assistant
Your keyboard cannot be identified.
The keys you pressed were not recognized. Click OK to select the keyboard type.
OK
When the key is recognized, the next panel will appear.
Shift
Identifying your keyboard...

7. Click OK. The Select the Keyboard Type screen is displayed, as shown in Figure A–7:

FIGURE A–7. Keyboard Setup Assistant Screen - Select Keyboard Type


Keyboard Setup Assistant
Select the Keyboard Type
Select the keyboard type and click Done. If you don't know your keyboard's type, contact the manufacturer of your keyboard and ask them to identify the type.
JIS (Japanese)
Japanese standard keyboard with input method keys
ISO (European)
ISO/IEC 9995 standard keyboard
ANSI (United States and others)
Standard 101-key or 102-key keyboard
Go Back
Done

8. Select ANSI and then click Done.

You are now ready to scan codes in using Mac OS X.

B

APPENDIX B

Certification and Specifications

CE Compliance

The HawkEye™ 40T has been certified to conform to the requirements of Council Directives 89/336/EEC, 73/23/EEC, and 1999/5/EC to comply with the following European Standards:

• EN 60950-1:2001	Low Voltage/Safety
• EN 300 238-2(2000-07)	Radio
• EN 55022:1994	Class B Radiated Emissions, and Class B Conducted Emissions
• EN 55024:1998	EMC Immunity Requirements
• EN 61000-4-2	ESD
• EN 61000-4-3	Radiated RF Immunity
• EN 61000-4-4	EFT
• EN 61000-4-5	Surge
• EN 61000-4-6	Conducted RF Immunity
• EN 61000-4-8	Magnetic Fields
• EN 61000-4-11	Line Interruption

All Microscan products bearing the CE mark have been declared to be in conformance with the applicable EEC Council Directives. However, certain factory installed options or customer requested modifications may compromise electromagnetic compatibility and prohibit use of the CE mark. Note that the use of interconnect cables that are not properly grounded and shielded may affect CE compliance. For further information regarding CE Compliance, see “Service & Support on the Internet” on page xi.

FCC Statement

The HawkEye™ 40T has been tested for compliance with FCC regulations and was found to be compliant with all applicable FCC Rules and Regulations

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense. Changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

Important Note: To comply with FCC RF exposure compliance requirements, this device must not be co-located or operate in conjunction with any other antenna or transmitter.

FDA Statement

This equipment complies with

US21 CFR Subchapter J Part 1040.10

EN 60950-1:2001

The HawkEye™ 40T can be set to use targeting lasers. If the targeting lasers are activated, do not stare into the beams. The HawkEye™ 40T's targeting lasers have been rated as Class 2M Lasers by IEC 60825-1

Safety Guidelines

Caution
Laser in the HE40T

LASER RADIATION - AVOID LONG TERM VIEWING OF DIRECT
LASER RADIATION - LASER CLASS 2M

Wavelength 630 nm - Maximum radiant power: < 1mW

EN 60825-1:2003

Important Note: LED Lighting

Light Emitting Diode Class 1 according to EN 60825-1:2003

Specifications

HawkEye™ 40T

Physical Characteristics

Reader Dimensions:	1.3” H x 4.3” D x 1.8” W (3.0cm H x 10.9cm D x 4.6cm W)
Handle Dimensions:	4.6” H x 3.8” L x 1.9” W (11.6cm H x 9.7cm L x 4.9cm W)
Reader Weight:	2.5 oz (71.5 gm)
Battery Weight:	2.1 oz (60 gm)
Battery Blank Weight:	0.5 oz (13.6 gm)
Handle Weight:	2.1 oz (60 gm)

Performance Characteristics

Power Requirements:	Reader @ 5Vdc (mA) – Typical = 140; Peak = 310; Idle = n/a; Sleep = 3; Bluetooth Radio @ 90m away (mA) Typical = 280; Peak = 350; Idle = 96; Sleep = 3 1400 mAH Battery with radio will support 4000 read/transmits per charge including 8 hours of standby interval.
Illumination:	Embedded Class 1 LED
Field of View:	Near: 1.0” H x 1.5” W (2.5cm H x 3.8cm W) at focal point Far: 2.5” H x 4.0” W (6.4cm H x 10.2cm W) at focal point
Focal Point:	Near: approximately 4” (10.2cm) Far: approximately 9” (22.9cm)
Sensor:	Progressive Scan CMOS 1.33 MP (1024x1280) 256 level gray scale
Optical Resolution:	Near Field:1024 x 640 pixels Far Field: 1024 x 640 pixels
Pitch:	± 60º (from front to back)
Skew:	± 60º from plane parallel to symbol (side-to-side)

Rotational Tolerance:	± 180º
Target Beam:	Class 2M Visible Laser Diode at 630 nm
Ambient Light Immunity:	Sunlight: Up to 9,000ft-candles/98,890 lux
Shock:	Withstands multiple drops of 6.56 feet (2 meters) concrete
Optional Cable Interfaces:	USB (Full Speed), RS-232 & PS/2
Memory:	4MB of memory for data and user programs
Programming:	Use programming Data Matrix code

User Environment

Operating Temperature:	0° C to 40° C (32° F to 104° F)
Storage Temperature:	-20° C to 60° C (-4° F to 140° F)
Humidity:	5% to 95% non-condensing
Decode Capability:	Data Matrix, PDF417, QR Code, MicroQR Code, Code 39, Code 128, UPC/EAN/JAN, Int 2 of 5, Codabar, Code 93
Image Output Options:	JPEG or BMP (Uncompressed)
Field Selection:	Near or Far
Resolution Selection:	SXGA (1024 x 640)
Time Stamp:	Interval Logging

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